

LBAM Environmental Advisory Task Force  
Meeting 5/5/08

# Biological Control of the Light Brown Apple Moth



**William Roltsch, Ph.D.**, Calif. Dept. of Food & Agriculture,  
Integrated Pest Control Branch, Biological Control Program

# Biological Control Topics

- **Augmentation** using egg parasitoids

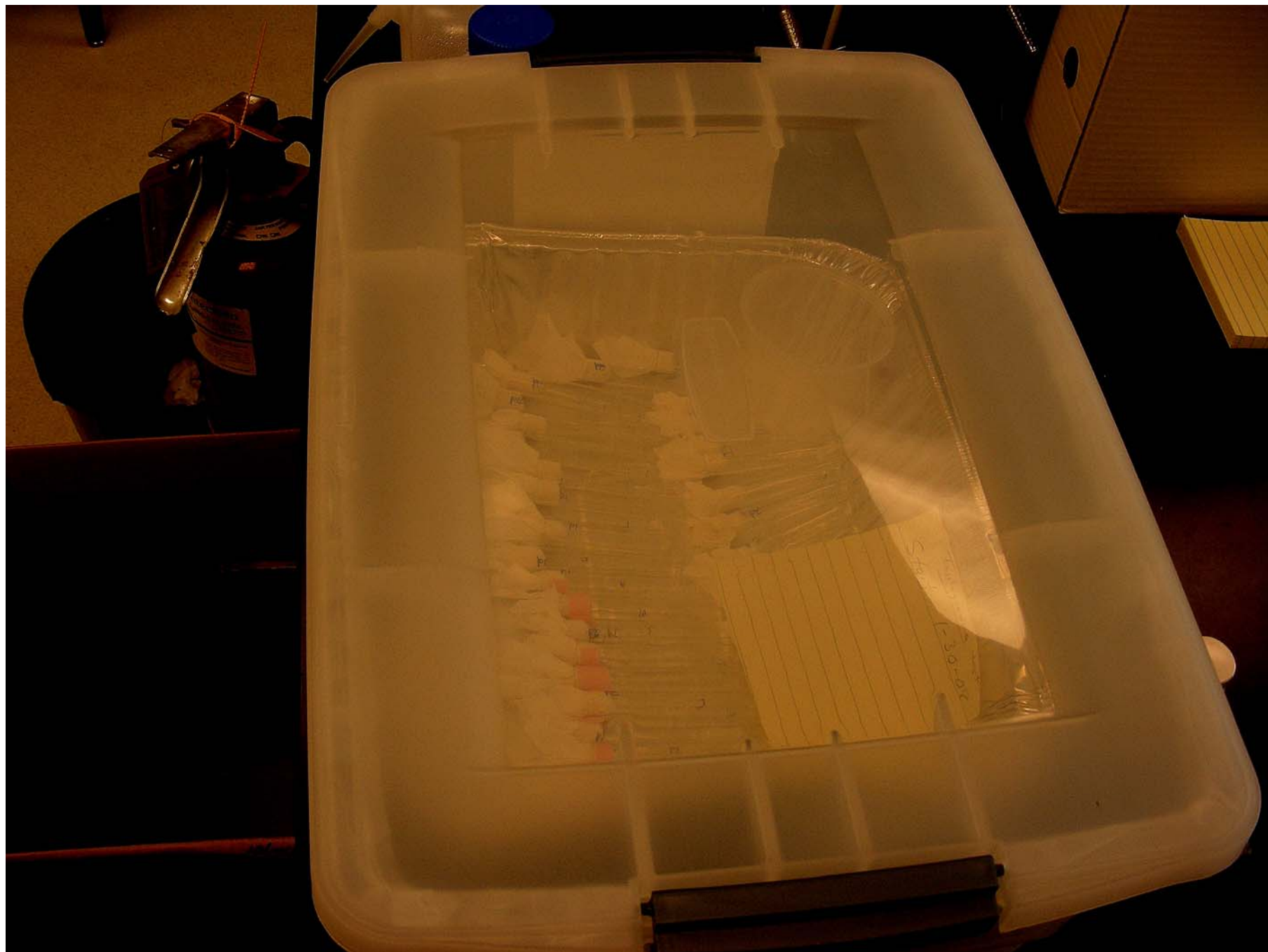
Temporary impact: short term elevation of parasitoid numbers by releasing commercially reared native egg parasitoid species.

- **Classical Biological Control** using LBAM parasitoids from native environment of Australia.

Long term impact: sustained impact by permanently established parasitoids

# ***Trichogramma* parasitism of LBAM Eggs**







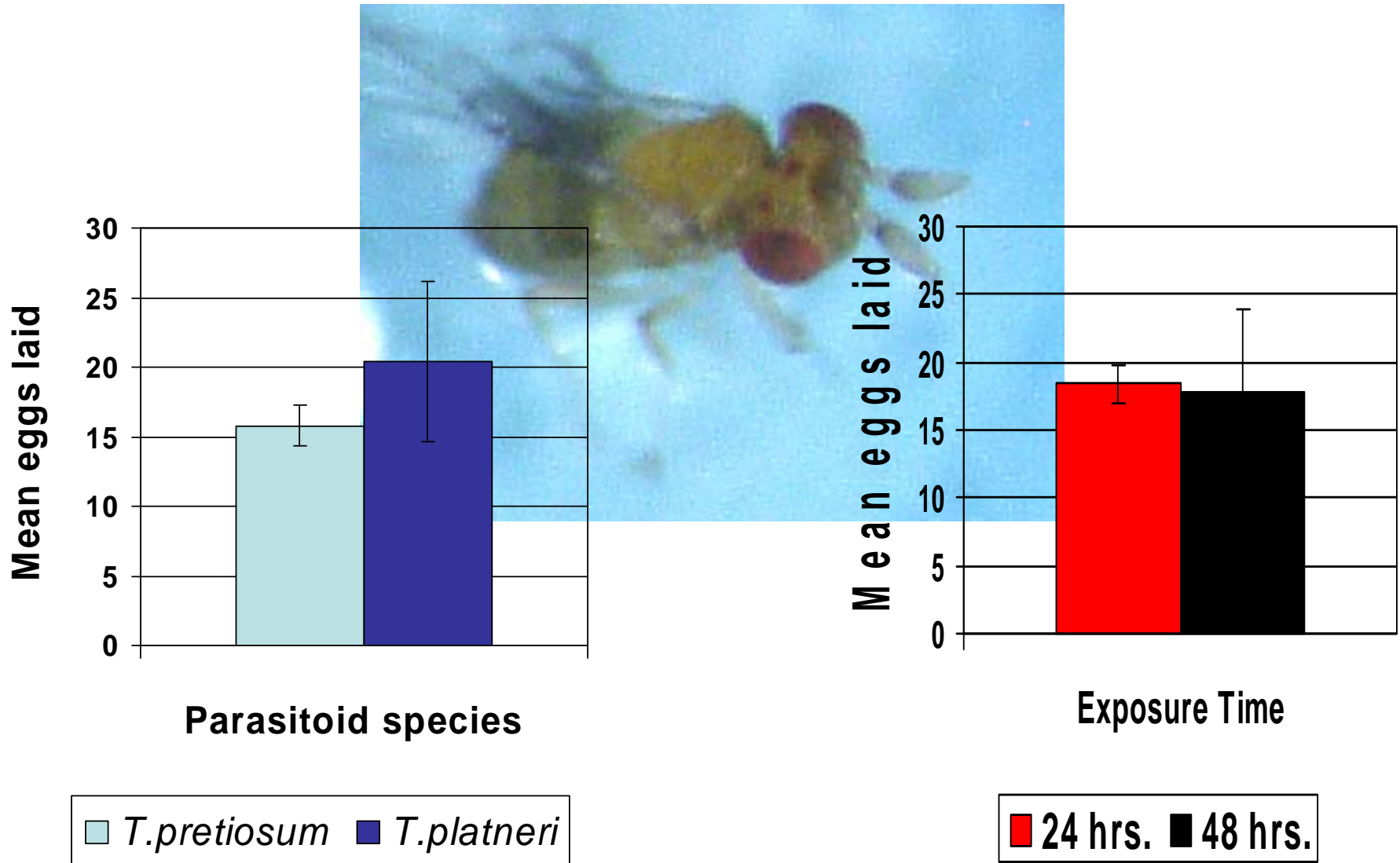
# Percent of *Trichogramma* That Parasitized LBAM Eggs

[Four tests, 20 reps per sp. per test]

|   |     |
|---|-----|
| <i>Trichogramma</i><br><i>pretiosum</i> | 51% |
|---|-----|

|  |  |
|--|--|
| <i>Trichogramma</i><br><i>platneri</i> | 31%<br>[parasitism in<br>one of 4 tests<br>was very low] |
|--|--|

# Parasitoid Eggs Laid Per Individual in 24 or 48 Hrs.





Five *T. pretiosum* released into cage with 10  
LBAM Egg masses



At least 8 of 10 egg masses were extensively parasitized





# Usefulness of Data

- We now are relatively certain that both *Trichogramma* species can readily parasitize LBAM eggs.
- Sentinel plants such as fava bean with LBAM eggs may be useful to monitor natural parasitism by egg parasitoids.



Tea tree:

*Leptospermum laevigatum*



# **Classical Biological Control**

- The following information is from Dr. Nick Mills, UC Berkeley



# LBAM: Strategy for Classical Biological Control in CA

- Consider introduction of selected parasitoids from the known complex on LBAM from **crops in Australia**
- To minimize the risk of non-target impacts, conduct **host specificity tests** on selected parasitoids to screen and reject unsafe candidates before field release
- Focus further foreign exploration for specialist parasitoids in **non-crop habitats in Australia**

# LBAM: Natural Enemies from Orchards/ Vineyards in Australia

Larval Parasitoids currently under  
evaluation [Nick Mills UC Berkeley]



*Dolichogenidea  
tasmanica*

Brachonidae

*Goniozus  
jacintae*  
[lost]

Bethylidae

*Bracon* sp.

Brachonidae

*Bassus* sp.

Brachonidae